Complete Summary

GUIDELINE TITLE

Ultrasonography in pregnancy.

BIBLIOGRAPHIC SOURCE(S)

American College of Obstetricians and Gynecologists (ACOG). Ultrasonography in pregnancy. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2009 Feb. 11 p. (ACOG practice bulletin; no. 101). [44 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: American College of Obstetricians and Gynecologists (ACOG). Ultrasonography in pregnancy. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2008 Oct. 11 p. (ACOG practice bulletin; no. 98). [44 references]

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Pregnancy
- Fetal growth, fetal number and viability
- Fetal growth disturbances
- Fetal anomalies
- Abnormalities in amniotic fluid volume

GUIDELINE CATEGORY

Counseling
Evaluation
Management
Screening
Technology Assessment

CLINICAL SPECIALTY

Obstetrics and Gynecology
Radiology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To aid practitioners in making decisions about appropriate obstetric and gynecologic care
- To present evidence regarding methodology of, indications for, benefits of, and risks associated with obstetric ultrasonography in specific clinical situations

TARGET POPULATION

Pregnant women

INTERVENTIONS AND PRACTICES CONSIDERED

Ultrasonography in pregnancy

MAJOR OUTCOMES CONSIDERED

- Sensitivity and specificity of ultrasound for identification of fetal anomalies
- Sensitivity and specificity of ultrasound for determining gestational age, fetal number, viability and placental location

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The MEDLINE database, the Cochrane Library, and the American College of Obstetricians and Gynecologists' own internal resources and documents were used to conduct a literature search to locate relevant articles published between

January 1985 and April 2008. The search was restricted to articles published in the English language. Priority was given to articles reporting results of original research, although review articles and commentaries also were consulted. Abstracts of research presented at symposia and scientific conferences were not considered adequate for inclusion in this document. Guidelines published by organizations or institutions such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were located by reviewing bibliographies of identified articles.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force:

I: Evidence obtained from at least one properly designed randomized controlled trial.

II-1: Evidence obtained from well-designed controlled trials without randomization.

II-2: Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group.

II-3: Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Analysis of available evidence was given priority in formulating recommendations. When reliable research was not available, expert opinions from obstetrician–gynecologists were used. See also the "Rating Scheme for the Strength of Recommendations" field regarding Grade C recommendations.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Level A — Recommendations are based on good and consistent scientific evidence.

Level B — Recommendations are based on limited or inconsistent scientific evidence.

Level C — Recommendations are based primarily on consensus and expert opinion.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Practice Bulletins are validated by two internal clinical review panels composed of practicing obstetrician-gynecologists generalists and sub-specialists. The final guidelines are also reviewed and approved by the American College of Obstetricians and Gynecologists (ACOG) Executive Board.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The grades of evidence (**I-III**) and levels of recommendation (**A-C**) are defined at the end of the "Major Recommendations" field.

The following conclusions are based on good and consistent evidence (Level A):

- Ultrasound examination is an accurate method of determining gestational age, fetal number, viability, and placental location.

- Gestational age is most accurately determined in the first half of pregnancy.
- Ultrasonography can be used in the diagnosis of many major fetal anomalies.
- Ultrasonography is safe for the fetus when used appropriately.

The following conclusions are based on limited or inconsistent evidence (Level B):

- Ultrasonography is helpful in detecting fetal growth disturbances.
- Ultrasonography can detect abnormalities in amniotic fluid volume.

The following conclusion and recommendation are based primarily on consensus and expert opinion (Level C):

- The optimal timing for a single ultrasound examination in the absence of specific indications for a first trimester examination is at 18–20 weeks of gestation.
- The benefits and limitations of ultrasonography should be discussed with all patients.

Definitions:

Grades of Evidence

I: Evidence obtained from at least one properly designed randomized controlled trial.

II-1: Evidence obtained from well-designed controlled trials without randomization.

II-2: Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group.

II-3: Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Levels of Recommendations

Level A — Recommendations are based on good and consistent scientific evidence.

Level B — Recommendations are based on limited or inconsistent scientific evidence.

Level C — Recommendations are based primarily on consensus and expert opinion.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of ultrasonography in pregnancy

POTENTIAL HARMS

- Use of ultrasound transducers, like any instrument used on a patient, presents the possibility of microbial transmission if not properly cleaned after each patient's use. Transabdominal ultrasonography is not completely free of this risk, although the risk is substantially lower than it is for transvaginal ultrasonography. Transabdominal ultrasound transducers may be adequately cleansed between patients simply by wiping with a disposable antiseptic paper towelette. Transvaginal ultrasound transducers should always be covered with a single-use disposable latex or nonlatex cover. However, disposable protective covers are not without risk of rupture or defect, and it is recommended that transvaginal ultrasound transducers undergo high-level disinfection between each use. Steps involved in cleaning transvaginal ultrasound transducers include using running water or a damp soft cloth to remove any residual gel or debris from the probe, followed by high-level disinfection with chemical agents. The U.S. Food and Drug Administration has published a list of approved high-level disinfectants for use in processing reusable medical devices. For all chemical disinfectants, precautions must be taken to protect workers and patients from the toxicity of the disinfectant. Practitioners should consult the labels of proprietary products for specific instructions as well as instrument manufacturers regarding the compatibility of these agents with probes.
- Ultrasonography is safe for the fetus when used appropriately and when medical information about a pregnancy is needed; however, ultrasound energy delivered to the fetus cannot be assumed to be completely innocuous. Diagnostic levels of ultrasonography can produce physical effects, such as mechanical vibrations (referred to as cavitation), or an increase in tissue temperature under laboratory conditions.

QUALIFYING STATEMENTS

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These guidelines should not be construed as dictating an exclusive course of treatment or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Audit Criteria/Indicators
Patient Resources

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness
Safety
Timeliness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 Dec (revised 2009 Feb)

GUIDELINE DEVELOPER(S)

American College of Obstetricians and Gynecologists - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Obstetricians and Gynecologists (ACOG)

GUIDELINE COMMITTEE

American College of Obstetricians and Gynecologists (ACOG) Committee on Practice Bulletins-Obstetrics

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: None available

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 4500, Kearneysville, WV 25430-4500; telephone, 800-762-2264, ext. 192; e-mail: sales@acog.org. The ACOG Bookstore is available online at the ACOG Web site.

AVAILABILITY OF COMPANION DOCUMENTS

Proposed performance measures are included in the original guideline document.

PATIENT RESOURCES

The following is available:

- Ultrasound exams. American College of Obstetricians and Gynecologists (ACOG); 2006. Available from the American College of Obstetricians and Gynecologists (ACOG) Web site.

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 4500, Kearneysville, WV 25430-4500; telephone, 800-762-2264, ext. 192; e-mail: sales@acog.org. The ACOG Bookstore is available online at the ACOG Web site.

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NGC STATUS

This NGC summary was completed by ECRI Institute on October 10, 2007. The information was verified by the guideline developer on December 3, 2007. This NGC summary was updated by ECRI Institute on January 5, 2009. The updated information was verified by the guideline developer on January 23, 2009.

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